

**ABSTRACT**

A fuel cell system is described for providing primary and/or auxiliary/backup power to one or more loads selected from the group comprising: lawn & garden equipment; radios; telephone; targeting equipment; battery rechargers; laptops; communications devices; sensors; night vision equipment; camping equipment; stoves; lanterns; lights; vehicles; cars; recreational vehicles; trucks; boats; ferries; motorcycles; motorized scooters; forklifts; golf carts; lawnmowers; industrial carts; passenger carts (airport); luggage handling equipment (airports); airplanes; lighter than air crafts; blimps; dirigibles; hovercrafts; trains; locomotives; submarines (manned and unmanned); torpedoes; security systems; electrical energy storage devices for solar-based, tidal-based, hydro-based, wind-based, and other renewable energy source; equipment for which a primary and/or backup power source is necessary or desirable to enable the equipment to function for its intended purpose, military-usable variants of above, and suitable combinations of any two or more thereof.

The system provides power to the one or more loads upon the occurrence of a power outage condition, which includes a disruption or discontinuation in the delivery of primary power (i.e., power from a system-external primary source, namely, a source other than the fuel cell system) to, or power demand condition by, the one or more loads.

A controller senses outage of primary power to, or demand for primary power by, the one or more loads, and, responsive thereto, operatively engages one or more fuel cells to provide power to the one or more loads.